DART

Card Index System Applied to the Writing Of Specifications for Building Construction

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THE CARD INDEX SYSTEM APPLIED TO THE WRITING OF SPECIFICATIONS FOR BUILDING CONSTRUCTION

BY

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THESIS

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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

WHITMAN DART

ENTITLED THE CARD INDEX SYSTEM APPLIED TO THE WRITING OF SPECIFICATIONS FOR BUILDING CONSTRUCTION

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE

OF Bachelor of Science in Architecture

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INTRODUCTION

In applying the card index system to the writing of specifications, the aim should be to keep the matter as general as possible. To accomplish this it is necessary that the specification of any item should be so worded that it can be used in any specification that calls for that item, and without extensive alteration, if any, to make it apply in the case in hand. In many instances it is necessary to specify sizes, numbers, brands, proportions, locations, etcetera, which of necessity vary with different buildings, and to that end blanks have been left in which such informations may be inserted.

For actual use the specification should be written on index cards, one item on a card, the cards being arranged in a file in the order in which they would ordinarily occur in a specification. It would be convenient in looking over the cards to have those relating to different classes of buildings on different colored cards,e.g. the specifications for the wood work intended only to be used in masonry buildings might be on red cards while those applying only to frame buildings might be on yellow cards and those which could be used on both might be on white cards.

In accordance with the "University Regulations" this specification has been written on the ordinary "Thesis Paper", but in preparing it cards were used and in transcribing each card has been kept distinct, it being a separate numbered paragraph.

In writing a specification for a particular building, the writer would run through the card file, taking out those cards

needed and stacking them in order, filling in the blanks with a pencil. Any special work would be written out on slips of paper the same size as the cards and stacked with them in their proper places. The Stenographer then copies from the cards and returns them to their proper places in the file.

The advantages of this system are, that it does away with the work of writing out a new specification for every building, it is more systematic than the common method of scratching up an old specification, the danger of leaving out items is decreased and it saves time. New material can be added at any time and in its proper place and any material found superfluous can be at once removed, a great advantage over any book system of specification writing.

In extent, this specification is intended to cover the ordinary practice of the average architect whose work is of the class commonly seen in the smaller cities. Such buildings as skyscrapers and other large fire proof structures, or the buildings usually designed by a specialist are not included, for a specification for such work can only be written in the light of some particular practice. Some subjects as,"Hardware", "Heating and Ventilating" and parts of "Plumbing" and "Electric Wiring" and various kinds of ornamental work are to such a large extent special cases for each structure that it was thought best to omit parts or all of them.

Whitman Dart '05.

May 1905.

GENERAL CONDITIONS

1. FORM OF BID. The printed form will be furnished upon which bids must be submitted.

2. BID. The Owner reserves the right to accept any or to reject any or all bids.

3. FORM OF CONTRACT. "The Uniform Contract" will be used in executing the contract for this work and all the clauses therein are then hereby referred to and made a part of this specification.

4. CHARACTER OF WORK. All work described in these specifications or shown in the accompanying drawings and all work dependent upon or necessary to the complete finish of said work shall be executed in a workmanlike manner, and all materials shall be furnished of the kind and quality set forth in said specifications and drawings and if not specially mentioned, shall be of the materials best adapted to the purpose.

5. IMPLIED WORK. Work specified and not drawn, or drawn and not specified, is to be executed as fully as if described in both these ways; and any work or materials which are not directly or indirectly noted in specifications and drawings but are necessary for the proper carrying out of the obvious intention thereof, are to be understood as implied, and to be provided for by the contractor in his proposal as fully as if specifically described or delineated.

6. CHANGES. The Owner reserves the right to order through the architect, changes in the work without impairing this contract, the value of such changes being mutually agreed upon in writing before hand between the architect and contractor.

7. DRAWINGS. The drawings herein referred to consist of sheets numbered ___ to ____ inclusive and under title of ____

____together with such full sized details as the architect may see fit from time to time to submit.

8. DIMENSIONS. Figured dimensions are in all cases to be adhered to, though they may differ from scale measurements. In the absence of figured dimensions, or in case of doubt as to the proper measurement, or in case of any differences or discrepancies between the said specifications and the said drawings, the Architect is to be consulted. Detail drawings take precedence over those of smaller scale.

9. OWNERSHIP OF DRWAINGS. All drawings and specifications as instruments of service, are the property of the architect and shall be carefully preserved and returned to the Architect before the final certificate is issued.

10. COMPLIANCE WITH LAWS. All work and materials are to comply ~~with~~ in every respect with the building laws, State and City, and such building laws, regulations and directions are to be considered a

part of these specifications, and of the contract to which they relate.

11. The Contractor shall obtain licenses, water tax and other legal fees incidental to this work.

12. NOTICES TO CONTRACTORS. Each contractor shall have a competent person constantly present on the work to receive and carry out the instructions of the Architect, and all communications, notices, or demands emanating from the Owner, left with, or sent by mail, to the contractor or given to his foreman on the Building, shall be considered delivered to him in person, and to have, been duly authorized by said Owner.

13. TIME OF COMPLETION. The entire work shall be completed and ready for occupancy____________________________.

14. CONTRACTOR. It is to be understood by the Contractor that his part of the building or work is entirely at his risk until the same is finally accepted, and that he will be held liable for its safety to the amount money paid him on account of the same.

15. The Contractor is to clear away from time to time the dirt and rubbish resulting from his operations, and to cover and protect his work and materials from all damage during the construction of the building, and deliver the whole clean and in perfect condition. He will be held liable for all injury to the building and is to provide and set all glass that may become cracked or broken through his or his sub-contractors' carelessness or negligence.

16. He is also, when his part of the work is finished to remove from the premises all tools, machinery,debris etc., and so far as he is concerned, will leave the building and adjacent premises free and clear from all obstructions and hindrances.

17. INJURIES. The Contractor shall be responsible for accident to his men or to other parties, and binds himself to obtain acquittance from, or to make payment in full to, any person, whether such person be a servant, a fellow contractor, or servant of a fellow contractor or a stranger, so injured or damaged by reason of any act or omission of the Contractor, his agent or employees, during the performance of the work under the contract and for which the Owner might be sued or be by law held liable to answer in damages.

18. BONDS. The Contractor shall furnish a satisfactory bond with a surety company ,authorized to guarantee th performance of contracts, as surety in an amount equal to__________of the contract price of the work contemplated, conditioned upon the faithful performance of the contract and the full payment for all materials used and services rendered in the execution of the contract .

19. Whenever called upon by the Architect, or by the Owner, the Contractor shall furnish them any information concerning the work that they, or either of them, may deem necessary to enable them to form

a just and intelligent opinion on any point whatever.

20. The Contractor shall arrange, as far as possible and practicable, or as may be directed, all materials, work, etc., so as to be readily inspected. He shall also furnish any help, assistance, apparatus, etc. that may be necessary in order to inspect, examine and test the work and material when called upon to do so.

21. The Contractor is to provide and maintain all requisite guards, lights and precautions for the safety of the public and of the employees of himself and other contractors.

22. The Contractor for carpentry work must provide temporary doors and windows to protect the building and to keep out unauthorized persons whenever this is required by the Architect.

23. The Contractor shall provide and maintain water closet facilities for his employees. Any person committing a nuisance in the building or on the premises will be prosecuted according to the City Ordinances.

24.
REPAIRS. The Contractor shall guarantee and maintain the stability of all work and materials, and keep them in perfect repair and condition for a period of________ from the issuance of the final certificate. Defects of any kind appearing during that period must be good

by the Contractor at his own cost and expense at the time he may be called upon to do so, and to the entire satisfaction of the Owner. All work must be in perfect condition at the end of the period above named.

25. SUB-CONTRACTORS. The Contractor shall not sub-let any of the work included within this contract without first receiving the Architects' approval of the proposed sub-contractor, and the sub-contractors shall be bound by all clauses in any part of this specification which pertain to their work.

26. OTHER CONTRACTORS. It is understood and agreed that the contractor will allow other contractors the necessary access, through the building covered under this contract, for their men and material, and is to work in harmony with them.

27. CLERK OF THE WORKS. The Owner will employ a clerk of the works who will see that all conditions of the contract and this specification are carried out and who will in the absence of the architect supply all information relating thereto; but it shall not be incumbent on him to lay out the work for the contractor, nor to notify the contractor when to begin any parts of the work or to get any material in readiness. Should any dispute arise between the contractor and the clerk of the works the matter shall be referred to the architect whose opinion shall be final.

The clerk of the work shall have access at all times to the building and to the places where in any material is being manufactured.

28. SURVEYS. The ______________________________ have a surveyor locate the corners of the building by reference stakes and also establish a bench mark on some convenient, permament object from which datum or grade can be obtained and heights measured.

29. INFRINGEMENTS OF PATENTS. The Contractor shall indemnify and at all times save harmless, the Owner against all loss or damage, claims and demands, costs and charges, that may arise by reason of the infringements of any patents, or the violation of the rights of any person under letters patent, and in the performance of the contract or by reason of the manner in which the same is performed, or through the use of any patented article or device.

30. SIGNS. No signs or advertisements of any description shall be placed about the premises or upon the building without the written consent of the Architect .

EXCAVATION

31. GRADE. The grade line shown on the drawings signifies the surface of the ground as it is to be after the building is finally completed. This grade will be established by the architect and be indicated by a stake, with reference to a permanent bench mark.

32. CLEARING SITE. Clear away all rock, dirt or rubbish necessary to leave the site of the building clear.

Cut down the trees where the building is to stand, and cut down and remove stumps of such other trees in the vacinity of the building as the superintendent may direct; cut wood into four foot lengths and stack where directed.

33. SOD. On site where the building is to stand and for ____________ feet addition all around, cut the sod in strips 2 feet wide, roll in lengths as long as possible, and stack in a moist place.

34. EXCAVATION. Excavate for the walls, footings, areas and piers of the dimensions and to the depth shown on the drawings and required by the grade. This excavation is to be _______ wider all around than is required for the wall.

35. EXCAVATION FOR RESIDENCE,ETC. Excavate for cellar under the part of building as shown on basement plan, and to the depths shown on sections. This excavation is to be made ________ larger all around the walls than is shown on the plans.

36. BOTTOM OF EXCAVATION. The entire bottom of the excavated area is to be brought to a true and level plane. If excavated too deep at any point the depression shall be filled with tamped cinders as earth filling will not be permitted.

37. EXCAVATIONS EXTENDING TO BED ROCK. If any excavations or portions thereof extend to bed rock, the loose and rotten stone must be picked off and the surface made level to receive the footings. All holes, cracks or pockets must be filled level with concrete laid in layers of not more than __________ inches and thoroughly tamped.

Sloping ledges must be stepped.

38. TRENCHES. Dig trenches for all wall, chimney and pier footings. These trenches shall be of dimensions shown on drawings.

39. BOTTOMS OF TRENCHES, AND PITS. Set grade pegs not over 16'-0" apart along bottoms of trenches, and at least one in each small pit, at a depth below grade required by drawings. Bring the bottom in each case to a true, level plane surface indicated by grade pegs.

40. BOTTOMS OF FOOTINGS AND TRENCHES. Make the bottoms of all trenches level on natural bedded soil, with vertical offsets where the depth of the footing changes, the offsets being made in steps of not more than twelve inches (12") in height.

41. FILLING DEPRESSIONS. Depressions caused by excavating too

deeply must be filled with concrete beneath the footings as filling with earth will not be permitted.

42. INSPECTION OF TRENCHES. Footing trenches shall be inspected by Superintendent before Masonry work begins.

43. TRENCHES FOR SEWERS. Excavate trenches for sewers and drains to a straight bottom carefully graded to fall uniformly to outlets designated and after pipes are in , fill the same. Fill trenches inside the building by tamping soil in layers.

44. REMOVAL OF EARTH. All earth taken from the excavation, except that which is needed to fill in around the walls, shall be considered the property of the Contractor and shall be removed from the premises.

45. DISPOSITION OF EARTH. The black and subsoil shall be kept separate and stacked on the premises where directed by the Superintendent.

46. REPLACING, EARTH. No earth shall be replaced in trenches against the sides of masonry walls or footings, until so directed by the Superintendent. It must then be replaced in layers and tamped solidly. Any earth which caves in against foundations, or back filling done before it is ordered, shall be removed.

47. GRADING. After the practical completion, and before the acceptance of the building, remove from the premises , all rubbish, waste material, building equipment and materials, and protections for trees. Replace the subsoil to form a proper slop in all directions. Cover

this with a layer of black soil________inches thick.

48. SHORING EXCAVATION. Shore sides of the excavation where necessary in a substantial manner with 2" plank and heavy inclined shores wedged to a solid bearing.

49. PROTECTION OF PROPERTY. In excavating care is to be taken to properly secure the streets and all adjoining premises from any caving, settling or other damages; and the contractor is to be responsible for any damages that may result.

50. PUMPING AND BAILING WATER. The contractor shall keep the excavations free from water, by pumping if necessary, until the foundation is completely in place.

51. CHANGES. Should the character of the soil make is necessary the Architect shall reserve the right to alter the foundations as required by existing conditions. Should these changes require any additional labor or material or less labor or material the cost shall be added to or deducted from the contract price.

TILE

52. CELLAR DRAINS. Furnish and lay 4" Farm tile 3" below level of cellar floor at its highest point and graded to keep below floor at its lowest point; this shall be in footing trenches outside cellar walls, and connects with drain tile at points directed by

Superintendent, [illegible] or shown on drawings; corners shall be turned with 4" elbows and all connections made by Y branches.

53. CELLAR DRAINS. Furnish and lay 4" farm tile ______ feet below level of cellar floor and in a trench ______ feet from cellar walls extending all around them, properly graded and connected with drain tile at points directed by superintendant or shown on drawings; corners shall be turned with 4" elbows and all connections made by Y branches.

54. VITRIFIED TILE DRAINS. Furnish and lay in best manner all vitrified tile drain pipe, indicated on plans, all uniformly graded, the bed hollowed for hubbs and jointed in clear cement; the joints scraped out as laid. All connections shall be made by Y branches and all angles shall be made with bends and elbows.

MASONRY

In General.

55. WALLS LAID TO LINES. Both the outer and inner faces of all masonry must be laid to lines and form true plane surfaces.

56. JOBBING. Attend upon carpenters, plumbers and other trades connected with the building, aiding and making good after them and perform all jobbing necessary for the perfect completion of the work.

57. OPENINGS FOR SEWERS AND PIPES. Form openings for the admission of sewers and pipes of all description whether shown on the drawings or not. When such openings are made by other contractors neatly patch and finish about them.

58. WOOD AND IRON LINTELS. These shall be built in by the mason and shall be furnished by the carpenter and the iron man.

59. WOOD CENTERING- WOOD BLOCKS AND NAILING STRIPS. These shall be furnished and set by the contractor for the woodwork and built in by the mason.

60. ANCHOR BOLTS. Build in anchor bolts to bolt studs to walls where stud partitions join masonry walls. These shall be placed every 4 feet in height.

61. ANCHORS. Anchor every ______joist to wall, and where joist are parallel to wall place an anchor every ________feet, the same to extend across ____joists.

Anchors shall be set and furnished by the carpenter and built in by the mason.

62. BOLTS. Set all bolts in masonry used to anchor columns. These shall be accurately set with a template and will be furnished by the steel Contractor.

63. CLEANING DOWN. After the building is completed and before the final certificate is issued all masonry work both interior and exterior shall be thoroughly cleaned down and all stains from any cause whatever shall be removed.

64. SETTING IRON SILLS. Set cast iron sills, (furnished by the iron contractor) in a bed of mortar at each end.

65. SHUTTER HOOKS. Build in at proper heights cast iron shutter hooks for windows of ______________________ ______________ same to be furnished by __________.

66. SETTING CAST IRON. Mason shall set all cast iron gratings, ash and clean-out-doors, man-holes, etc. furnished by iron contractor.

Materials.

67. SAND. All sand shall be coarse, clean and sharp.

68. SAND. All sand shall be clean, sharp river sand, screened through a _________ mesh.

69. BROKEN STONE. Broken stone shall be of hard ______ stone and of size to pass through a ______ inch diameter ring.

70. GRAVEL. All gravel shall be clean, free from loam fine sand and foreign substances; no piece shall be too large to pass through a 2" ring.

71. CINDERS. All cinders for concrete aggregate, shall be

vitrified furnace clinkers free from ashes and unburned coal, broken to pass through a ______ring and screened through a 1/4" mesh.

72. LIME. All lime shall be fresh burned quick lime of the best brand produced at ______________________________ __________. All lime shall be free from cinders and clinkers; shall be in large lumps and free from dust.

73. NATURAL CEMENT. Natural Hydraulic Cement shall be______ brand or its equal.

74. CEMENT NATURAL. Natural cement shall have a specific gravity of not less than 2. 76, be of such fineness that 80% will pass through a #100 standard sieve and briquetts made from the neat cement after exposure to the air for 1 day and immeersed in water for 6 days, must show a tensile strength of 90 lbs. per sq. in. Pat 1/2" thick, exposed to air for 7 days or immerrsed in water 7 days after lard set, shall show no blotches, discolorations, checks or signs of distinct greatness.

75. PORTLAND CEMENT. Portland cement shall be ______________ brand or its equal.

76. CEMENT PORTLAND TESTS AND QUALITIES. All Portland cement must have a specific gravity of not less than 3.10, contain not more than 3 % of magnesia, not more than 1 3/4% of an hydrous sulphuric acid, be of such fineness that 90 % will pass through a # 100 standard sieve, and briquettes made from such neat cement, after exposure to air for 1 day and immersion in

water for 6 days, must show a tensile strength of 350# per sq. in. 1/2" pats exposed to the air 7 days or immersed in water for 7 days after hard set shall show no blotches, discolorations; checks or signs of disintegrations.

77. NON-STAINING CEMENT. Non- Staining cement shall be the La Farge cement.

78. NON-STAINING CEMENT. Non- staining cement must be of a brand that has been in use at least two years to test its non-standing qualities, must have a specific gravity of not less than 2.75, contain not more than 2% sulphuric acid, be of such fineness that 85% will pass through a standard #100 sieve, and briquettes made from such neat cement, after an exposure of one day in the air and 6 days in water, must show a tensile strength of 200# per sq. in, and 1/2" pats exposed to air for 7 days or immersed in water 7 days after hard set shall show no discoloration, blotches, checks, nor signs of disintegration.

79. ORIGINAL PACKAGES OF CEMENT. All cement must be of uniform quality and when delivered must be unopened original packages with brand and maker's name stamped thereon. All damaged or rejected cement or lime shall be immediately removed from the premises.

80. STORAGE OF CEMENT AND LIME. All cement and lime shall be stored in a floored shed with a tight roof and fully protected from dampness.

MORTARS & CONCRETE

81. CEMENT MORTAR. Cement Mortar shall be composed of _____ measure of Cement and _________ measures of sand and shall be mixed on a tight platform as follows: ______ measures of sand shall be evenly distributed on the platform and ______ measuresof cement shall be distributed on the sand and the remainder of the sand shall be distributed on the cement. The sand and cement shall then be thoroughly mixed in a dry state and then water shall be added in a sufficient quantity to convert them into a mortar which will stand in a pile and not be fluid enough to flow.

82. LIME MORTAR. All mortar shall be mixed in the proportion of _____ part of lime putty to _____ parts of sand. The lime shall be slacked at least three days before it is mixed with the sand.

83. PROPORTIONS OF CONCRETE. The Concrete used in ____ shall be mixed in the proportions of _____ sacks of cement, _____ barrows of sand ____ barrows of aggregate.

84. PROPORTIONS OF CONCRETE. The Concrete used in ________ ______ shall be mixed in the proportions of ____ measures of cement, ______ measures of sand, and _____ measures of _______________.

85. MIXING CONCRETE. All concrete shall be mixed as follows:- The sand and cement shall be thoroughly mixed dry , then only sufficient water added to thoroughly dampen the mass, the aggregate to be drenched and drained and mixed with the mortar until each piece is

thoroughly coated.

86. LAYING CONCRETE. All concrete shall be put in place immediately after mixing. Concrete for all walls, piers and footings shall be laid in courses____thick and between curbs of 2" plank which shall conform exactly to the shape and dimensions indicated on plans and sections.

Superimposed courses shall be laid on the lower one only, after it has set; The lower course first being cleaned from all dirt and moistened.

87. CONCRETE FOOTINGS. See "Laying Concrete" and "Proportions of Concrete".

88. CONCRETE FLOORS. Level off soil, settle it thoroughly by tamping or rolling, fill with at least_____inches of cinders well tamped, put down a _____inch layer of concrete and a ____inch finish coat composed of ______ part cement and ____parts sand, tampered and spread upon the concrete base before it has set, smooth down to even finish with trowel and cut into blocks no larger than ______feet square.

89. REINFORCED CONCRETE FLOORS. Build on substantial wood centers constructed to conform exactly to the form of the beams and girders, a concrete floor using__________ ______________for reinforcing and level up to h~~ie~~ights indicated with_______concrete mixed in the proportions of _________________________. Bed sleepers furnished by carpenter same to be____________________________

inches O.C. The concrete is every where to cover all lower flanges and webs of beams and channels at least 1 1/2".

90. CONCRETE FLOORS REINFORCED. Build reinforced concrete floors where shown on plans of the ________________ systems of construction the same to follow the manufacturers specification in every particular and to be proportioned to a live load of _____lbs. per square foot.

91. CONCRETE WALLS. Concrete walls shall be built in_____ inch courses of dimensions shown on plans of ______ concrete well rammed between stout plank curbing. The faces, corners and horizontal heights to be true, square and even through out.

R O U G H S T O N E W O R K

92. DIMENSION STONE FOOTING. Dimension stone footings be composed of slabs of ____________stone, quarried of uniform thickness with true surfaces and straight edges set on natural bed, each slab or offset in footings shall be composed of a single slab the full thickness of the offset. No slab shall be less than ______feet in width and not more than one joint running transversely of the wall may be made in the length of any slab. Footing courses not exceeding _______ feet in width must be of but one slab wide , where joints are permitted running longitudingly, the slab next above must extend over the joint at least_____

_______times its width.

No offsets shall exceed the thickness of the slabs.

93. STONE FOOTINGS. All footings shall be of large flat stones laid on natural bed, each, stone filling the course in width and height, close fitted and flushed up with spawls and ________mortar and laid on natural undistrued earth.

94. DIMENSION STONE. Build foundation walls __________________ of dimensions shown on drawings of good, sound,________ stone, coursed rubble work, no stone to be less than ____" x ____" x ____" in size; all rough pointed with parallel builds and risers, each stone to be laid on its largest surface which must be the natural quarry bed. Walls are to be leveled horizontally every 30" in height and to have a header every ______ superficial foot extending entirely through the wall; all to be laid with full flushed joints neatly pointed (inside and outside) inside and weathered outside.

95. STONE FOUNDATION WALLS RUBBLE. Build foundation walls ___________________________of sizes shown on drawings of large sound _________stone, well bonded by a thorough stone every ____feet in length and every _____feet in height. All stones to be laid on natural beds (to a line on both sides), the joints well filled with mortar and spawls, and well troweled both inside and outside. Outside joints to be weathered.

96. RUBBLE WORKS. Rubble wall shall be built of large stones roughly

squared with the hammer, with shew backs formed for all arches, beds in a reasonably true line, builds not necessarily verticle and at least 1/8 of the stones xxxxxy to be thorough stones. No stone to be used which does not contain at least 1/2 cu.ft.

Bed the joints through out and build joints shall not exceed 3/4" thouroughly fill all joints, and neatly trowel point them . No exposed projections shall exceed 1" or unexposed 2"; all walls to be leveled off on top.

97.
CHASES IN RUBBLE. Chases shall be formed in exterior rubble walls to receive interior brick partitions where shown on plans. Surfaces of chases shall be made smooth and interior walls built close into these chases.

98. **CAP STONES.** All piers or sections of masonry walls supporting iron colums shall have caps of _____ stone of sizes shown on drawings with dressed parallel beds, bedded in cement mortar, and shall have holes drilled where anchors are shown or called for.

CUT STONE WORK

99. QUALITY OF MATERIAL. All exposed stone work on ______________ ____________________________________ to be # 1 selected ________stone of close grain, even texture and color free from all defects.

100. COURSES. All plain surfaces shall have ashlar courses ____ inches in height. The face courses shall extend alternately 8" and 4" into the wall, all properly breaking joint. There shall be a header every ______ft in each course going through the entire wall.

101. SETTING. All exposed stone work shall be carefully set in a full bed of mortar and all joints, except face joints, shall be thoroughly filled. Leave face joints open to a depth of 3/4" for pointing; the face joints not to exceed ____inches. All stone shall be brushed clean before setting and no stone shall be set in freezing weather.

102. WORKMANSHIP. This work must be wrought to the exact dimensions, forms, designs, profiles, and must be jointed as shown on drawings.

All beds, builds and joints must be full, true and out of wind and set with a ______inch joint uniformly throughout.

No parts of the face shall be carried up more than two courses before they are backed up.

103. BEDS. All stone, (except ______), to be laid on its natural or quarry bed.

104. BACK FINISHING. All stone shall have horizontal surfaces coming in contact with masonry axed to an even full bearing, all unexposed sides and backs pitched off at right angles with the beds, except stone against which wood or iron will abutt, which is to be finished to a true surface ; the top and bottom surfaces of column footings stones to be finished true.

105. ASHLAR BEDS. Beds of Ashlar courses shall be sawed and backs sawed or hammer dressed to approximately perpendicular line.

106. SURFACE FINISHES. The face shall be ________ tooled with ________corrugations per inch. The face stones shall be pitched off to a line on all sides. The face shall be rubbed with water and sand until smooth. The face shall be _____cut work.

107. COURSE PLANS. Contractor must submit for approval by Superintendent plans showing the size and jointing of all stone work, and stone must hot be gotten out until said plans have been approved.

108. ARCHES. All arches shall be set on centers which must not be struck until the mortar is thoroughly set. All voussoirs shall be of the thickness of the arch. Beds of arch stones shall be bushed. Faces shall be ________

____

109. BACK JOINTS. Back joints and rabbets of reveals shall be cut true and plumb to allow stone work to make tight joints with the woodwork.

110. STEPS, SILLS,ETC. Steps and platforms shall be set with a wash of 1/8" to 1'-0" where not other wise indicated, door and window sills to have wash, sills to be cut with seat at each end; door and window sills to have bearings at ends only.

111. PROJECTIONS. All projecting courses shall have more than half their mass setting behind the wall line, and where not weighted down must be anchored to the backing.

112. DRIP. All horizontal projections of 3/4" or more shall have water drips cut on their under sides.

113. PIERS. Piers shall be bonded with _____ headers in height of each.

114. MOULDINGS. All mouldings shall be cut sharp, clean, and in strict accordance with full size drawings; exposed faces to be ________________________________.

115. COLUMNS ETC. Columns, ballusters, etc. shall be turned with a lathe, exactly conforming to the scale and full size drawings and shall be _________ finished.

Shafts of columns shall be in ____ pieces properly doweled with iron dowels set in cement. Joints of all columns must be worked perfectly level and rubbed down to a true surface at right angles with center line of shaft.

116. CARVING. Execute all carving in a bold, artistic and spirited manner from the detailed drawings furnished for the same.

117. MODELS. Contractor shall submit full size plaster models of relief work to the architect for approval before executing same.

118. CARVING IN PLACE. All carving of ________shall be done after stone is set in place, for which ample stocks shall be left.

119. STRING COURSES. Tops of sills,exposed string courses, and water tables shall be ______________.

120. OFFSETS. All offsets of lintels, cornices, string courses or other flat projections to be tooled at right angles to faces; except where ornamentation. is shown on on offsets when it shall be __________.

121. DOWELS. All verticle stones as in, archi- traves, balustraches, etc. must doweled, top and bottom, with iron dowels set in cement.

122. JOBBING,ETC. The Contractor shall cut reglets for all flashing, trim and line up any imperfections in the allignment and do any other cutting or drilling required for the reception of the adjoining material when ever called upon.

123. IRON WORK. The mason contractor shall supply all cramps, anchors, and dowels necessary to firmly secure every stone in place; make all sinkages therefore and build and bed them in place; cramp and anchors to be ______ iron; cramps on the exposed surfaces to be let in at least 1/2" and the groove packed full of neat Portland Cement well tamped in.

124. NO PATCHING. No patching or hiding defects will be allowed, and no lewis holes shall be made in surfaces which will not be covered with masonry.

125. POINTING. After walls are entirely completed all joints shall be raked out to a depth of 3/4" and neatly___ pointed with _________tool and _____cement.

126. CLEANING. Upon completion of building and during mild weather all exposed stone work throughout shall be cleaned down with wire brushes and clean water.

127. PROTECTION. All projecting courses or members shall be protected with boards or stout paper so as to thoroughly protect them from being disfigured by mortar stains or from any other injuries.

BRICKWORK

128. BRICK LAYING. All walls shall be built uniformly all around one scaffold in height at a time, the courses of brick being kept level, the intersections well bonded, and the faces of walls plumb and out of wind. All joints shall be thoroughly flushed up with mortar and face joints struck to shed water. Backing and face work shall be carried up at the same time.

129. BEAM SETTING. Courses shall be carefully leveled up and brought to the proper height to receive the floor joints, beams or girders.

130. BEAM FILLING. After joists are set, brick up between them flush with their tops so as to thoroughly fill all spaces.

131. STOPS AT FLOORS. At a height within the depth of each floor and within the ceiling of the top floor, project two courses of brick sufficiently to prevent passage of air, fire, or verin , between face of brick and inner face of plaster.

132. COMMON BRICK. Common brick shall be the best selected, hard burned, straight and true of full size; shall be laid in cement mortar below grade and in lime mortar above grade, except where specified or shown on the drawings to be otherwise.

133. WETTING BRICK. All common brick shall be laid wet in warm weather and dry in freezing weather.

134. PRESS BRICK. Press brick shall be ______________________________

____.

They are all to be of first quality free from chips and cracks and of even shade through out,- kiln . They shall be laid in lime putty mortar colored with ______mortar color, and with _____joints.

135. FACE BRICK. Face brick shall be ____________________________

____

_________________________________laid in _____mortar with ____joints and laid _____bond.

136. HOLLOW BRICK. The interior 4" of all exterior walls shown or specified to receive plaster, shall be of a hard burned hollow brick laid in the manner specified for common brick work. The brick shall not absorb more than ____per cent of their own weight of water.

137. BONDS. All common brickwork shall be laid common bond with every ____course headers all header courses to be filled with mortar and laid close.

Flemish. Face brick shall be laid Flemish bond with every ____course of headers full length.

Wire. Face brick shall be laid in running bond with a _____metal tie(running bond) to every ____square feet of wall area.

138. BOND STONES. All brick piers exceeding in height eight times their least dimensions shall have __________ bond stones every ____feet, to be in one piece full dimensions of the pier and not less than ___inches thick, set level with full bed of mortar and with dressed, parallel, beds.

139. JOINTS. The exposed joints of brick work that is to be plastered shall be cut off rough for plaster key; other exposed joints to be neatly troweled pointed.

140. ROW LOCK ARCHES. All arches in brick walls shall be full thickness of walls or depth of reveals and of the number of rowlocks shown, in no case less than two.

141. ARCHES IN FACE WORK. All flat arches and arches of less than four feet span shall be ground to proper radius. All others shall be made by clipping brick.

142. ARCHES IN PRESS BRICK. All arches in press brick work shall be ground at _______ to the exact sizes and shapes shown by full sized details.

143. SHOW BACKS,ETC. Where ever required shew backs must be formed in the walls for springing the arches, and offsets, corbels, etc. must be formed or cut where shown or needed.

144. CENTERS. All arches, both flat and curved, must be built on strong wood centers, which must be struck when the mortar has thoroughly set. Permament centers are to remain where required. The Carpenter shall provide set, ease and strike all centers.

145. RUBBING. All exposed clipped surfaces shall be rubbed.

146. UNLINED FLUES. Flues shall be laid smooth and plastered on inside with cement mortar as the work progresses and shall at no place be reduced to less than the indicated size. Withes shall be of birck properly bonded.

147. LINED FLUES. Flues shall be lined where so shown with

vitrified tiel flue lining, of size to fill entire brick opening and shall be carried from base of flue to top of chimney. The linings shall be cut to fit accurately at all angles in flues and at thimbles and openings. They shall be laid in cement mortar with joints pointed smooth in inside as work progresses.

148. CHIMNEY TOPS. All chimney tops shall be laid in cement mortar.

149. THIMBLES. Provide and set black iron thimbles as indicated on drawings.

150. FIRE BRICK LINING. Line first _____feet of _____ stack with fire clay brick, laid in fire clay mortar with thin joints properly bonded to other work with _____.

151. VENT FLUES CHASES. Vent and hot air flues and chases shall be built true with selected fair brick with neat trowel pointed joints and of sizes indicated on drawings.

152. CLEAN OUT DOORS. Provide and set at base of flues where shown on plans, cast iron clean out doors with frames.

153. FIRE PLACES. Build in substantial manner all fireplaces of hard brick as per detaisl. Provide and set necessary dampers, lintels and ash flue covers.

154. BRICK FIRE PLACES. Furnish and set as per details all press brick, moulded brick, and terra cotta, required to complete mantels in ______________________________

______________________ .

155. ASH PITS. Build ash pits, in basement under all fire places, as s

as shown on the drawings and provide same with cast iron ash pit doors and frames securely fastened in place so as to make a thoroughly dust proof opening.

156. BOILER SETTING. Brick in boilers with all hard burned brick laid in cement mortar and line all surfaces exposed to fire with fire clay brick, laid flat in fire clay mortar with thin joints. Build in all eyelets, iron frames, dampers, ventilators, etc. furnished by heating contractor.

157. AREAS. Build areas around windows where shown on drawings of brick set on end and bonded to gether. Area walls shall be 8" thick and shall be set in cement mortar. Bottoms shall be paved with brick bedded in 3" of sand.

158. GRATINGS. Set area gratings, furnished by iron contractor, where shown on plans. Provide and set area gratings where ever shown on plan.

159. BRICK CISTERNS. Level off bottom of excavation and lay one layer of brick imbedded in a heavy layer of cement mortar, brick to be laid flat with dry joints; then thoroughly grout the same with liquid cement. Build the side walls on the bottom 8" thick in form as shown, laid in cement mortar with all joints thoroughly filled and made solid. Dome the top two feet below the surface and build up a manhole 2'-0" in diameter and furnish the same with iron ring and cover at grade surface.

160. BRICK PAVEMENT. Where shown on plans, lay a brick pavement consisting of ____inches of concrete upon which

shall be laid flat wise first quality, hard burned, side walk brick in hewing-bone pattern. The whole shall then be covered with sand well worked into the joints.

161. WALL COPING. Cope the walls where shown on drawings, with glazed tile wall coping of sufficient width to cover the entire thickness of the wall. Bed them in lime mortar, except on a sloping walls where they shall be both bedded and jointed in cement mortar and anchored as shown on plans.

162. FLASHINGS. Where flashing is required the same is to be built in as work progresses whem ever possible.

Flashings will be furnished by the sheet metal Contractor.

163. DAMP PROOF COURSE. Lay in all walls at grade level ,one layer of three ply rubberoid or paroid roofing.

164. ASPHALTUM COATING. Cover the entire out side of foundation with ~~entire out side of fo~~ two heavy coats of Asphaltum applied hot. This shall extend from grade down to footings of all excavated parts. The wall must be thoroughly dry before this coating is applied.

STRUCTURED TERRA COTTA.

165. QUALITY. All structured terra cotta shall be of the best quality and porous with about 40% voids, and of such texture as to take a nail with out cracking, moulded fair and true, thoroughly and evenly burned, face from dileterious substances, from large piln cracks, or other defects. Surfaces that are to receive plastering to be rough. All terra cotta must be capable of being heated to a red heat and plunged into cool water without serious cracking.

166. SETTING. All porous terra cotta work shall be bedded and jointed in cement mortar, and shall be thoroughly drenched before placing; joints not to exceed 3/8". Anchors shall be wrought iron asphalted or galvanized iron.

167. FLOOR ARCHES. The floors in ______________________________

____

____________________ are to be constructed with flat terra cotta arches, end construction, with side construction shew backs, with offset line ____ inches below bottoms of beams or channels, the shew backs must be so formed so as to cover the offsets of the steel framing; no cutting of blocks will be allowed, if blocks do not fill the space joints must be slabbed or special patterns made to fit the work. All exposed portions of girders to be fully protected by not less than 2" of terra cotta.

168. PARTITIONS,ETC. Blocks for 6" partitions are to have not less than two cells. All terra cotta partitions are to extend to the various heights indicated, to be firmly bonded to gether and anchored to the outside walls. Steel columns in the terra cotta partitions shall be carefully built around so as to be covered by not less than ____inches thickness of terra cotta, and when finished to be plumb, true and out of wind.

169. COLUMNS. Steel columns in ______________________________ ____ ______________________ shall be encased in terra cotta; this casing when finished to be plumb, true and out of wind, and to extend fully to the ceiling.

170. FURRING. All plastered exterior walls are to be furred with _____inch terra cotta, securely anchored in place with galvanized iron anchors built into the masonry.

171. LINTELS. Channel iron lintels of same width as the thickness of partitions shall be placed over all openings more than 12" wide in terra cotta partitions; lintels shall be placed back down and have a 6" bearing at each end.

172. TESTING FLOOR ARCHES. Before concreting, the terra cotta floor arches must be tested, where directed by the Superintendent, by placing_____lbs. dead load evenly distributed over ____sq.ft. of arch surface the load to extend across the full width of the arch; any shoring of beams necessary in Connecting with the

test must be done by the contractor, any arches damaged under this load must be removed and rebuilt.

ORNAMENTAL TERRA COTTA.

173. QUALITY. Ornamental terra cotta shall be of an approved permament color and to be finished ____________________

____

shall be made of homogenious clay, hard burned, of even texture, true to line, oat of wind, free from kiln cracks or other defects, have webs of sufficient thickness to provide the required strength for substantial work. Make necessary holes, slats, etc. to receive iron work.

174. EXECUTION. Ornamental work to be executed with spirit, well accented and be in strict accordance with models or full sized details.

175. RE-TOUCHING,ETC. All terra cotta after being removed from the mould and before burning shall be retouched as may be necessary; sufficient terra cotta must be burned to permit of selection to fill the requirements of this specification.

176. FITTING. All terra cotta work shall be fitted to gether at the factory and numbered to correspond to a setting plan same to be furnished by the T.C. Contractors.

177. MOULDING JOINTS. All mouldings shall be carefully matched at joints, projections provided with drips; at sills and cornices raised weathered joints must be used on the exposed upper surface.

178. OPENINGS FOR DOWN SPOUTS. Cut openings for all down spouts allowing 1/2" all around for expansion.

179. REGLETS. All terra cotta coming in contact with roofs or flashing, shall be made with reglets to receive the same.

180. SETTING. All terra cotta must be set in a full bed of mortar; all joints to be thoroughly filled and pointed. In general hollow portions, except projecting parts to be filled with common brick and cement mortar or concrete.

181. IRON SETTING. The Contractor shall furnish and set all iron work necessary for the proper supporting of the terra cotta, such iron work to be thoroughly coated with asphalt or galvanized.

182. PHOTOGRAPHS. The Contractor shall submit to the architect photographs of such work as he may require and have them approved before said work is burned.

183. MODELS. When ever required the Contractor shall submit to the Architect for approval full sized plaster models of ornamental work before said work is burned.

STEEL

184. QUALITY OF STEEL. All steel shall be medium steel, having an ultimate tensile strength of from 60000 to 68000 lbs. per square inch, elastic limit not less than one half the tensil strength, minimum elongation of 22% in 8" length, minimum reduction of area at fracture 40%, and to bend cold through the 180° on a diameter equal to the thickness of the test piece without showing crack or flaw on the outside of the bent portion.

185. RIVET STEEL. Rivet steel shall have a tensile strength of 50000 to 58,000 lbs. per square inch, an elastic limit of 50%, minimum reduction of area at fracture of at least 50% and minumum elongation of 28% in 8" and must be capable of being beat on itself and flattened without any sign of fracture.

186. INSPECTION. All steel,both the material and the finished work will be subject to inspection by an inspector appointed by the Architect, whose certificates of inspection must be forwarded directly to him. All inspection will be at the expense of the Contractor for the steel work.

187. TEST PIECES. Standard test pieces, cut from finished material and turned or planed down to not less than 1/2" sq. inch sectional area shall be used for tests. All pieces required must be furnished by the contractor.

188. SHOP DRWAINGS. For all structural steel and iron work required, the contractor shall furnish shop drawings,

which must be submitted to the Architect for correction and approval before any work referred to in them is started. This approval however only general in character and applies only to the weights of material and details of construction. All responsibility for fitting and measurements must be assumed by the Contractor.

189. CONNECTIONS. Both shop and field connections shall in general be riveted, but where it is impossible to rivet, bolts may be used drawing all nuts up tight, and securing same by ~~xppxxx~~ upsetting threads with a chisel.

Connections between cast iron and steel or wrought iron shall be by bolts.

190. CONNECTIONS. All connections whether of columns or beams shall be "Standard Connections" where ever it is possible to use them.

Separators. Cast iron separators shall be used between all double triple or other combinations of beams or channels or of beams and channels.

Rivet angles on to beams where beams carry floor joist.

RIVETS. Rivets must completely fill the holes, and have full heads, bearing fully on the plates, and heads must be concentric with the rivet. Machine riveting shall be used where-ever possible.Rivet heads in bearing surfaces shall be countersunk.

192. RIVET HOLES. All rivet holes must be laid off and made so accurately that the holes of members in contact will come opposite when in position.

Holes in materials 5/8" thick or less may be punched full size, but holes in all materials over 5/8" thick shall be punched 1/8" small and reamed to full size, or holes may be drilled. The punch must not exceed the rivet nor the die the punch by more than 1/16" in diameter. When holes need enlarging it must be done by reaming.

193. PLANING. All joints at splices and bearing ends of columns must be planed so as to give a close bearing throughout.

194. REANNEALING: Steel that has been partially heated or bent cold must afterwards be wholly annealed except the ends of beams after heating for coping.

195. MARKING. Every member must have distinguishing marks, to designate its position, plainly painted thereon near its end.

196. BUILT UP MEMBERS. Built up members when finished, must be absolutely free from twists, open joints, or other defects.

197. SETTING. The Contractor must furnish and accurately put in place, substantially connected up and built in, all iron and steel work.

198. ANCHORS. Ends of all beams on walls or piers are to be anchored to same with wrought iron anchors.

199. STAIRS. Construct the stairs shown on drawings with strings of __________ iron, with _________ bars to support treads.

Treads shall be ______________________________________.

Form railing of ____

____

200. FIRE ESCAPES. Provide and put in place wrought iron fire escapes at ____ ______ and constructed as per details. Brackets are to extend through the wall bolted on inside. Fasten ladders securely to walls and balconies. The lower leaf of ladder is to be hinged to raise out of reach from the ground.

201. HAND RAILS. Provide and set for stairs against walls 2" round wrought iron hand rails held by stout brackets firmly fastened to walls. These shall be used in ____.

202. SHUTTERS. Furnish and hang in position, iron shutters for windows ____ ____. Frame is to be constructed of 2" x 3/8" iron and covered ____iron riveted to frame and left projecting 1". Build proper cast iron shutter eyes into walls and hang the shutters with wrought iron hinges. Provide each shutter with bolts or hooks fasteners.

203. MISCELLANEOUS. Steel plates must be used for leveling up, and all miscellaneous iron work, bearings anchor and tie rods, angles, etc. required for the proper construction and placing of the steel work shall be supplied by this contractor.

204. SUBSTITUTIONS. If it is found impossible with in a reasonable time to obtain any sizes or shapes called for consideration will be given the substitution of other equally strong or stronger sections, same to be approved by the Architect.

CAST IRON.

205. CAST IRON. All castings shall be of tough grey iron, free from injurious cold sheets or blow holes, true to pattern and of workman like finish.

Strength. Sample pieces 1" square from same heat of metal in sand moulds shall be capable of sustaining a concentrated center load of 500# on a 4'-6" clear span, bar to be tested in the rough.

206. CAST IRON COLUMNS. Cast iron columns shall be true and straight of full and uniform thickness throughout. All necessary flanges, etc. shall be cast iron. All bearing surfaces are to be turned on planed smooth and at right angles to the line of pressure. All bolt holes shall be drilled. All corners,mouldings, flutings, etc. shall be smooth, clean and sharp. Ornamental work where possible shall be cast separately and put on with screws with joints made close by filling.

No part or a cast iron column shall be less than 3/4" thick.

207. CAST IRON PLATES. Cast iron plates of sizes shown on drawings shall be provided and set under ends of all steel beams and girders resting on masonry and under columns. Carefully bed them in cement mortar and level up to proper hight.

208. CAST IRON LINTELS. Cast iron lintels shall have flanges of widths shown on drawings, webs to be 4" high at ends for spans of 24" or less increasing 1 1/2" for each 12" increase in span. Lintel 16" in width or over shall have double webs. No part of a lintel less than 10"-0"

span shall have at least a 6" bearing and over 10"-0" a 10" bearing.

WHEEL GUARDS. Provide and set where shown cast iron wheel guards _____inches in diameter at bottom ____inches high and 3/4" metal. These shall have angle plates and lugs cast on back and shall be anchored to the masonry wall by wrought iron anchors or shall be fastened to the frame with bolts or log screws.

210. REGISTERS. Provide and set register faces,_________ finish complete with frames where ever shown on drawings and of sizes indicated.

211. CAST IRON SILLS. Provide and set where shown cast iron door sills with diamond pattern rough surface, strengthened by ribs. Same shall be bedded at ends in cement mortar by mason.

212. GRATINGS. Provide heavy cast iron gratings for ____________ ______________ areas. Same shall be set by the mason after exterior work is completed.

213. ASH & CLEAN OUT DOORS. Provide cast iron clean out doors and frames _____x___ same to be set by mason.

Provide cast iron ash pit doors and frames ____ x____. same to be set by mason.

214. ASH DOORS. Provide and set cast iron clean out doors at base of flues where shown on plans. Same to be ______ in size.

215. MAN HOLE COVER. Provide _______man hole _____inches in diameter with frame and covers complete to be set by mason.

CARPENTERY

216. GENERAL. The Carpenter is to do all necessary wood work; to furnish temporary protection to all openings and to deliver up the works when finished in an entirely perfect and undamaged state.

217. OTHER TRADE,CUTTING,ETC. The Carpenter shall do all cutting of timber and wood-work required by other contractors to properly carry out their work.

218. WORK FOR MASON. The Carpenter shall provide centers, wood lintels wood brick, nailing strips window frames, girders joists, posts, etc. and fit and set, the same for the mason at such times and in such manner as not to delay the work.

219. HEIGHTS. The Carpenter is to give the mason rod heights on all bearing walls.

220. QUALITY OF MATERIAL. All lumber used must be of the quality and grade called for, properly seasoned and after delivery at the building must be properly protected from injury and dampness.

221. TEMPORARY ENCLOSING. The Carpenter shall temporarily enclose the building before plastering is started. Temporary doors shall have locks and windows must be fitted with muslin or temporary sash as directed.

FRAMING

222. FRAMING TIMBERS. These shall be of #________________________
__________________________________ unless otherwise indicated on drawings or in the specification. They shall be free from large or loose knots, and from other

defects which would seriously, impair their strength or durability.

223. SIZE OF TIMBERS. The size of timbers such as beams, rafters joists, etc., are marked on the drawings or shown on the details. All members not so marked shall be made of the sizes which in the judgment of the superintendent may be needed.

224. SMOOTHING TIMBERS. All timbers showing in ____________
______________________________ shall be hand smoothed.

225. BOX SILLS. Around all outside walls and flush with the outer face of the wall bed a 2" x ___ plate in mortar and on it set a 2" x ____ on edge, well spiked together Where the outer wall is parallel to the joist set another 2" x ___ flush with the inside of the wall and block between the two.

226. SILLS. The outside sills shall be ______painted on lower side before placing and be well bedded in mortar. The joist, girders,etc. shall be connected with them by
____

227. MILL CONSTRUCTION WORK. ______________________
____
____
____
____
______________________________.

228. JOISTS. All joists are to be of sizes and spacing shown

on plans and bridged as specified.

Joists in masonry set in, to be cut with beveled end and have at least 4" bearing.

Joist must be sized to width and set crowning edge up.

229. UPPER FLOOR JOISTS. The Joists in ______ floors and _____ floor ceiling are to be supported on 7/8" x 5 3/4" ribbons let 3/4" into through studs and with double plates on all bearing partitions in the lower story.

230. HEADERS & TRIMMERS. Frame headers and trimmers aroud all openings. These shall be double for all openings of 7'-0" or less and for joists of less than 8'-0" span, and to be trebble for more, unless otherwise indicated on the drawings.

Trimmers supporting more than _____tail joist shall be hung with W.I. hangers.

231. BRIDGING. Bridge with _____ x ____ stuff, beveled to fit nailed with two 10 penny nails at each bearing, once in spans up to 16 and three times in spans from 16 to 20 ft.

232. WALL PLATES. Bolt _______ x _____ wall plates to top of ________________brick walls. They shall be made of two 2" pieces with joints broken and well spiked together.

233. SOLE. Lay a 2" x 4" plate on first story rough floor all around the building and under all inside partitions.

234. FRAMING OF STUDS. Studs at angles and openings shall be doubled, be firmly spiked to the plates, and be in one length through two stories where ever possible. Where partitions rest on partitions below, set studding on the cap of the partitions below. All studs must be set plumb and true, particularly doors and window framing and studs must be sized to width.

235. PARTITIONS. All inside stud partitions are to rest on doubled headers, trimmers and joists.

236. FRAMING OVER OPENINGS. Frame over openings, 3'-0" or less in width with 2" x ___ and 3'-0" or larger with 2" x ____. Openings over 5'-0" shall be trussed. All headers, shall be set on edge and doubled.

237. SHEATHING. Cover the frame of the building with

____,

double nailed to every bearing and put on diagonally.

238. BUILDING PAPER. Cover all sheathing with _________________

____________________________________ well lapped and extend it well under all casings corner boards,etc., so as to make a tight job.

R O O F S

239. TRUSSES. These shall be made of the sizes of timbers,rods, bolts, straps, and connections, shown on drawings. They shall be accurately fitted together and set true upon ___________bearing plates. Each truss shall be fastened to the wall by a wall anchor.

240. ROOF. Frame and construct the roof in the most thorough manner. Provide and fix in place the rough carpentery necessary to form the projecting eaves of all cornices. Rafters shall be doubled at all openings.

241. ROOF COVERING (TIGHT). Cover all roofs to be slated or tinned with _____ inch matched sheathing well nailed to every bearing.

242. ROOF SHEATHING. Open sheath the roof with _______________ ____________________________________ double nailed at each bearing and cut close around all openings, except chimneys.

243. SHINGLES. Shingle over the parts of the roofs so marked on drawings with ______________________________ _________________________ shingles laid ____ inches to the weather and nailed with 2 __________ nails.

244. HIPS AND VALLEYS. All hip and valleys are to be mitered and laid close with tin shingles woven in to every course.

245. RIDGE. Cover the ridge with _____ inch ridge boards, closely joined together.

246. LOOK OUTS. Frame lookouts for all cornices, bays,etc. in a substantial manner and place not more than _____ O.C.

247. STRIP GUTTERS. Form strip gutters on roof with _____ strips set on edge and nailed through shingles. Put on sawed brackets as per details every _______.

248. BOX GUTTERS. Form box gutters as shown on details, support cornice and gutter with rough brackets _____ inches O.C. and form gutters in cornices where shown. Line with 7/8" surfaced boards graded to leader openings.

Support edge of gutter with _____ iron strips _____ inches O.C. fastened to roof sheathing.

FLOORS.

249. SLEEPERS;PLACE. _______ sleepers 2" x 3", beveled, laid 16" O.C. notched over flanges of beams and bedded one inch in concrete. These are to be furnished and placed by carpenter and bedded by concrete contractor.

250. ROUGH FLOOR. Over the entire area of ______________________ ________, lay a rough floor of _____ common lumber 8" and 10" surfaced one side, run diagonally and cut diagonally to a bearing at joist.

251. FLOORS. Floor the ______________________________________ ________________ with ____ fence flooring, blind nailed at every bearing and plane off all in equalities at the completion.

252. FINISHED FLOORING. Lay in ________________________________ _____________________ a finished floor of _____________ ___________ ~~free~~ kiln dried, end matched, _______________ ______ free from all defects marring its appearance; same shall not be put down until plastering and painting are completed. This floor is to be laid on 7/8" strips, blocked to a level surface, laid over ____ thickness of ______ building paper and blind nailed. All inequalities shall be smoothed off. The floor shall run under doors without joints when adjoining rooms have same floor.

253. PORCH, FLOORS. Lay porch floors of ______________________ _______________________________

with joints well leaded; pitch out-ward 1/8" to the foot.

254. DEAFENING. Over floors of ____________________________ ______________________ lay _____________________ ________________________ after plastering is completed and floors swept clean.

255. WOOD THRESH-HOLDS. Lay under all doors of ______________ ________________________________ white oak thresh-holds _____ x ____ with edges beveled and rounded and fitted neatly in place.

O U T S I D E   F I N I S H

256. OUTSIDE FINISH TIMBER. All exposed exterior lumber shall be ____ thoroughly kiln dried, and shall be protected from dampness and injury before and after it is worked. All outside finished lumber must be primed by painter before or immediately after it is put up.

257. SIDING. Side the ______________________________ _____________ with ___________________________ inch dry beveled siding with not less than 1" lap. Cut close joints against all casings and other work and nail every 16 inches. Corners of _________________ _________ to be mitered.

258. OUTSIDE TRIMMING. Build all cornices, belt course corners, boards, window casings water table, porch trimmings, ____

etc. of ____

________________ as shown on drawings.

259. OUTSIDE MOULDINGS. All mouldings, architraves and all other work of similar nature must be made in strict accordance with the detail drawings.

260. TIMBER WORK. Build half timber work shown on elevations with ________________________ nailed to sheathing. Verticle edges and lower edge of horizontal members shall be rebated _____ on inside and upper edge of horizontal edges bevelled out.

261. PORCHES. Frame and finish porches as shown on general and detail drawings and secure same properly to the building

262. PORCH COLUMNS. Construct columns of ______________________ ___________________________________ with ______ inch pine plank built up and turned with ___________________ _____ caps and bases, all as per details.

263. OUTSIDE CELLAR WAY. Enclose the cellar hatch way with 7/8" M and B batten doors, cased on sides and hung with strap hinges and fastened inside with hooks and staples. Anchor frame securely to masonry and provide rests to allow door to lie open.

FRAMES. SASH & DOORS.

264. FRAMES. Build all frames for doors and windows in accordance with detail drawings. Box frames for windows shall be fitted with ________ sash cord, ____________________ ____ pulleys and sash counter ballenced with ______ weights. Cut slits in pully stiles large enough to

admit weights and fasten caps in them with countersunk brass screws.

265. WINDOW FRAMES. Window frames shall be made in the usual manner and of form and sizes required by drawings with neat moulded drip ____ inch side and head casings; sill shall be 1 3/4" thick, sub-sills 7/8" thick, blind stop 7/8", yellow pine pulley stile with removable cap to pulley box, and with 3/8" parting strip let into it but not fastened. Inside stops to be fastened with screws and washers.

266. BLANK FRAMES FOR CELLAR SASH. Make cellar frames of ____ x __ _______ with rebated jambs.

267. DOOR FRAMES. Door frames shall be made according to details and of sizes shown on drawings. They shall be of ____ ______.

268. SETTING FRAMES. The carpenter shall set and plumb frames in masonry walls. All wooden sills coming in contact with masonry shall be bedded in hair mortar.

269. SASH. All sash are to be as per detail drawings and must be given a priming coat of ______________________________ before being brought to the premises.

270. DOORS. All doors shall be of sizes shown on plans and according to scale and full sized details, and of materials shown on plans for the finish of the rooms they are in, or, as specified else where.

271. VENEERED DOORS. All veneered doors shall be staved up on white pine cores . s with solid mouldings, 1/8"

veneering of kiln dired wood on sides and panels, with 1/2" veneer on the edges and solid panels. Veneer shall be ______________________________________ ______________ and panels ______________________________ ____________________.

272. **SLIDING DOOR POCKETS.** Line sliding door pockets in sides with 1/2" ceiling and close up ends and top with solid pieces.

273. **SCREENS** Furnish all windows of ____________________________ ________________________ with ______________________ screens. Frame work shall be 7/8" ____stuff, mortised and tenoned at joints and covered with extra heavy #12 mesh wire netting fastened with sentable strips.

274. **BLINDS.** Provide and hang outside blinds for _____________ _______________________________________ made of first quality white pine _____thick, with rolling slats and cut in _______ folds.

275. FURRING GROUNDS.

FURRING OUTSIDE WALLS. Furr all outside walls that are to be plastered with ___ x ____ strips 16" O.C. put on vertically, brought to a level line and well nailed on.

276. **FURRING FOR BACK PLASTER.** Nail _____ strips between studs of outside walls for back plastering

277. **FURRING CHIMNEYS.** Furr around chimney _________ with 2"x4" studs laid flat ways. Furr around ventilating ducts with 2" x 4" studs.

278. **FURRING CEILINGS.** Cross furr ceilings in _________________ ______________________________ with ____ x ____ strips,

well nailed at each bearing and brought to an even plane

279. FURRING FOR METAL CEILINGS. Furr ceilings of ____________ ____ same to be even and true. Put up necessary cove, cornice and beam furrings to carry out work as detailed or specified under metal ceilings.

280. GROUNDS. Set grounds ___ x___ for door and window trim, wainscot, base boards, etc, in plastered rooms; before plastering is done.

281. PREPARATION FOR TILING WALLS. IN ________________________ ______________________________ nail 2" x 4" pieces horizontally between studs about 12" apart, to a height of ________.

282. PREPARATION FOR TILING. Place between joist and ___ inches below their upper edges 7/8" boards on cleats. Bevel joist on both sides to a point on top.

INTERIOR FINISH

283. WORKMANSHIP. All inside finish shall be kiln dried, hand smoothed sand papered and entirely free from machine marks, or defects of manufacture.

284. INSIDE FINISH. All openings shall be finished as shown on details and of material shown on plans.

285. BASEBOARDS. Picture mouldings, chair rails,etc. shall be of sizes and forms shown on drawings and of same material as remaining finish of rooms they are used in.

286. WAINSCOTING. Wainscot the ________________________________ _______________

____high with ____ inch kiln dried, clear M & B ____ ceiling, free from all defects and finished with a moulded cap as per detail and with a __________ at the base.

287. CORNER RODS. All corners to be plastered with__________ ______ liable to be chipped, are to have corner rods.

288. BASE KNOBS. Provide and place rubber tipped base knobs to protect walls or finish from doors.

289. BOOK CASES. Build book cases in ____________________ _______ of ____ __________ as per details.

290. PANTRIES & CLOSETS. Fit up all pantries and closets as shown on plans and details, with _________________________ _______________________ stuff.

291. CUT OUT BOX. Build cut-out box where shown on plans and provide with panel doors, to be ____x____, inside measurement.

292. STAIRS. Furnish and set all stairs as indicated on plans and as per detail drawings.

293. FRONT STAIRS. Build front stairs with exposed work of __________________. Support them on carriages ____thick, shaped to the treads. Treads to be _____thick, strings ____thick, and risers 7/8" thick. Treads and risers shall be grooved together and housed into the wall string. Wall string to member with adjoining base. Hand rail, balusters and newels to be as per details and closely bolted and mortised at joints.

294. REAR STAIRS. Construct rear stairs of ______ with 7/8" risers ____treads and ___wall strings, with treads and risers housed into wall strings.

295. TANKS. Construct a ___ x ___ x____ tight wooden tank to be lined by plummer, with hinged cover and with _____ inch holes cut for supply discharge and over flow. Provide also wooden safe ___x___x___ deep to be lined by plummer and with hole cut for drain to come under overflow of tank.

296. PIPE CASING. Cover the pipe chases in ____________________ ____________________________________ with _____ covers wide enough to be securely screwed in place through each edge. Use round-headed _____finishing screws.

297. KITCHEN SINK. Build drip board and rim for kitchen sink of ___________________, and of sizes shown on drawings.

298. WORK FOR PLUMBING FIXTURES. Provide and place all necessary tack boards, carrying strips _________________________ ______________________________,etc. upon which are to be placed plumbing fixtures. Same shall correspond with balance of wood finish in the room.

P L A S T E R I N G

299. WORKMANSHIP. All walls and ceilings shall be made true and straight and all angles sharp. All exterior angles shall be rounded with 1/4" trowel and left straight and perfect.

300. SCREENS. Screens must be placed in exterior openings to prevent checking or injury by weather.

301. PATCHING. Do all patching and repairing after other mechanics and leave all plastering in a good and perfect condition.

302. CLEANING. Thoroughly clean out all rubbish, dirt, materials tools,etc., after work is completed.

303. LATHING. (METAL) Lath all walls ______________________________ ______________________________ with ____________________.. ____metal lath well nailed to every bearing.

304. LATHING METAL. Cover all soil and other pipes, wood lintels, iron beams,wood girders and ________________ with expanded metal lath properly stapled in place, also run a 12" wide strip of metal lath up all intersections angles of stud partitions and masonry walls.

WOOD.

305. Lath all walls to be plastered, except inside brick walls with #1 seasoned ____lath, free from bark or sap laid ________apart with joints broken every ____courses and over all openings; securely nail to every bearing. No lath shall run through a partition nor shall any be put on vertically.

306. OUTSIDE LATHING. Where plaster is shown on elevations,

lath with ____________________________ metal lath nailed to ____x____verticle furring strips ______inches O.C. and well nailed.

307. EXTENT. All lathing and plastering shall extend behind all wainscoting, wood finish, cornices, base, etc. except that finished coat may be omitted behind ______________________________.

308. LIME. The lime shall be thoroughly slacked, pure lime strained through a 1/4" mesh screen.

309. SAND. The sand shall be fine clean sharp sand, free from loam.

310. HAIR. Hair shall be clean _____hair well beaten, soaked and thoroughly mixed in.

311. THREE COAT WORK. The first coat shall be a scratch coat well rubbed in and thoroughly scratched. Follow at once with brown coat which shall be trued up with darby and float and when brown coat is thoroughly dry follow with finished coat of _______________________ ____________________________________.

312. TWO COAT WORK. First coat shall be composed of ____________ ______________________________________ well rubbed in and follow with a coat of ____________________________ ______________________________________finish.

313. SCRATCH COAT. The scratch coat shall be composed of 1/2 bushel of hair to one barrel of lime to three barrels of sand, and stacked ____days before using. Thoroughly scratch immediately after applying.

314. BROWN COAT. The brown coat shall be composed of 1/4 bushel of hair to one barrel of lime to six barrels of sand applied as soon as the scratching is done and thoroughly tied up. The brown coat shall be stacked at least ___days before using.

315. HARD FINISH. The hard finish shall be composed of ____ parts lime putty,____parts fine white sand, and ____ parts plaster of Paris finished and troweled to a smooth polished surface free from all tool marks.

316. SAND FINISH. The sand finish shall be composed of _____ part lime putty to ____parts white sand floated up true and evenly with cork floats.

317. PATENT PLASTER. Plaster__________________________________

____

coats of ___________________________________put on according to the directions of the makers and finish last coat with _____true and even throughout.

318. EXTERNAL ANGLES. External angles shall have a ________ metal corner bead as a ground.

319. PLASTER CORNICES. Plaster cornices, architraves, mouldings etc. shall be run straight, smooth and in strict conformity to details.

320. OUTSIDE PLASTER. Where shown on elevations plaster with___ coat of cement mortar___parts____cement to ____part fine washed sand. Cover with a ___coat of ___Portland cement and sand in proportions of ___parts of cement to ______parts of sand and finished ____________

ROOFING

321. GUARANTEE. All roofs shall be guaranteed to be tight under all conditions for _____years from the completion of the work.

322. ROOFING FELT. Cover all surfaces which are to have metal or slate roofs with one thickness of ________________ __________roofing felt lapped at least 1" securely tacked and smoothly and evenly laid and fitted closely around all openings and intersections. The roof shall be broom clean before laying felt.

323. METAL RIDGE ROLLS. Each ridge so marked on drawings shall have a ___inch ridge roll extending its entire length which shall be of _______.

324. SLATE. Cover roofs so marked on drawings with ____________ ____slate, ___x___x ____ in size of uniform color, cut edges,square tails and each slate shall have two nail holes bored and countersunk.

325. LAYING SLATE. Each slate shall lap 3" over the second course beneath and fastened with two _____ slaters nails. The eaves shall be double covered. Hips, valleys and ridges shall be laid in elastic slaters cement for a distance of _____feet back from them. Lay in cement all slate around chimneys, ventilators, dormers, and on all verticle surfaces§

X326. FITTINGS. At hips, valleys and ridges slates shall show same line and other sizes than those called for shall be furnished if necessary.

327. HIPS. Hips shall be laid close with ______________ painted both sides, inlaid with slate and cement.

328. VALLEYS. Valleys shall be laid open with ____, care must be taken not to nail through these valleys within 2" of the edge of the slate. Valleys shall be ____ inches wider at the bottom than at the top. Where valleys must meet the metal shall be locked and soldered. Form center ridge ___ inches high in valleys.

329. IMPERFECT SLATE. All chipped or broken slate whether injured by roofer or others shall eb removed and replaced and the whole left perfect in appearances as well as storm proof.

330. TILE ROOF. Cover the portions of roof so marked with

____

roofing tile of uniform ____ color put on according to makers directions. No cutting of tile at the job or filling cave or valley ends with cement will be allowed, but all hips and valleys must have special members cut to proper pitch while green and so burned. Provide also such special, hip and ridge tile as are needed and special eave tile with closed ends, to be used back of chimneys and at eaves. Below chimneys use ridge tile. All lines must be perfect-ly true and straight. Valleys must be 4" wider at the bottom than at the top.

331. COMPOSITION ROOFS. Cover roofs so marked with ____ roofing felt evenly and smoothly laid ____ fly weighing not less than ____ lbs. per ply per square ___ mopped to full width with __________________________ and fastened with

tin capped nails every ____feet. The entire surface to have ___heavy coat of ________________________________ ________________________put on hot and immediately covered with an even cover of clean screened ____using ____lbs. per square. Turn up felt around walls and counter flash with stepped tin flashings. Apply coating at a temperature of about 350°.

SHEET METAL WORK

332. TIN ROOFS Cover roofs so marked with ______________________ tin plates in sheets ___x___in size, painted on backs laid with joints single locked, flat seams not less than 1/2" wide, malleted flat and soldered in risin wiped clean on completion. Tin shall be secured with 3 clips 1 1 /2" wide, to each sheet , securely nailed to roof and turned in with the joints.

333. FLASHING. Turn tin of roofs at least_____upon the masonry where possible and counter flash. Counter flashing to extend at least 2 inches into brick work and to come within 1" of roof, and stepped inclines.

334. JOINTS. Joints shall be well locked and soldered and no nail heads are to be left exposed.

335. VALLEYS. Valleys shall be of ____________________________ _______________________ 4 inches wider at bottom than at top. Tin valleys shall be painted on upper surfaces before______________.

336. TIN. All tin shall be ______________________________ tin soldered in resin and painted on back with mineral paint.

337. FLASHING. Furnish carpenter with all necessary painted tin to enable him, to flash all outside work.

Flash over all window and door heads and projections of more than 2".

Flash ___ inches high against all brick work and counter flash with tin stepped up and turned into horizontal brick joints.

338. ROOF VENTILATORS. Roof ventilators shall be ____________

____

ventilators of sizes shown.

339. SKY LIGHTS. Provide and build sky lights of ____________ arranged as indicated on drawings. Each skylight is to have ventilators of proper size worked from below, by cords. Skylights shall be of __________________

___________________________,Make.Skylights shall have a suitable device for collecting and discharging water of combination.

340. METAL CORNICES. Build cornices so shown on drawings of

_____________________conforming accurately to profiles shown on details. All miters and openings shall be cut and all short joints soldered. Make locked and soldered joints between gutter and crown mould.

341. LEADERS. Furnish and put up where shown on drawings

____

leaders with all necessary curves ________
hold fasts,etc. Joints shall be lapped and soldered tightly together. Put ________wire screens over oepnings in gutters and connect leaders to tile at ground, put in curved spouts,put in combinations to tile, spouts with cut off.

342. HANGING GUTTERS. Provide and put up hanging gutters where shown on drawings of ______________________________,
of form and size shown on details. Fasten same with
______________ ______________every ________feet.

343. METAL CEILINGS. Provide and put up metal ceilings in
____.
These shall be ____
____
________________and securely nailed and primed on both sides.

344. BOX GUTTERS. Line gutters of ______________________________
with tin and extend tin at least __________inches up
under ____________________.

345. TINNED SHUTTERS. Provide and hang by strong wrought iron hinges at windows____
__________________tinned wooden shutters provided with proper hooks and staples to keep open and shut .Each shutter shall have fire mains and handles. Provide all cast iron shutter hooks,etc. be built into masonry.

PAINTING

346. GENERAL. The painter shall provide all scaffolding, staging,etc. necessary for the proper carrying out of his work, and he will be held responsible for any accidents due to defects of same or to his neglignce. He shall prosecute his work, with an adequate force of competent mechanics and with out unnecessary delays. On completion of his work he must leave every thing clean and neat and must remove from glass,woodwork, floors,etc. all spots and stains caused by him.

347. WORKMANSHIP. All workmanship shall be strictly first calss. All material and labor shall be the best of their respective kinds and everything needed to complete the work, must be furnished whether the same has been distinctly specified or not. All coats of paint must be well brushed on and no paint must be applied to a surface which is damp or otherwise unfit to receive it, nor during freezing weather.

348. ORIGINAL PACKAGES. Where special brands or makes are specified or agreed upon they shall be delivered at the building in unbroken original packages.

EXTERIOR PAINTING.

349. SHELLAC. All knots,sappy and pitchy places shall be covered with grain alcohol shellac before painting. All rough places shall be sand-papered smooth.

350. PRIMING. All outside woodwork shall be primed with one coat of ____

____

351. PRIMING FRAMES. All window and door frames shall be primed with one coat of ______________________________ before being set.

Sash shall be primed with one coat of lead and oil before leaving the mill.

352. PUTTY. All nail holes, cracks, and defects must be filled with pure putty after priming, same shall be made only from the best grade of bolted whiting and pure raw linseed oil.

Putty must be colored to match the color of the wood where wood is to have a natural finish.

353. OUTSIDE WORK. Paint outside woodwork ___coats of

____

each coat to be of different tint as diercted. Trimmings shall be painted particular colored of shades as directed.

354. SHINGLE STAIN. The shingles of ______________________

____

______________________ shall be dipped two thirds their length in ______________________________

________________ shingle stain and after they are laid shall receive one brush coat of the same.

355. EXTERIOR VARNISH. Exterior wood work of ______________

____

______________________________ shall have one coat of ____paste filler, well rubbed into the grain, follow with _____coats of ____________________________ exterior varnish; and shall be rubbed between coats with

curled hair or sand paper but leaving last coat unrubbed.

356. ANTIQUE EFFECT EXTERIOR. Stain the ______________________________ ______________________________ with an approved acid or pigment stain and follow with two coats of boiled linseed oil well rubbed into wood.

Apply the oil white hot.

357. OILING. Pully stiles and parting strips of box frames shall be given ____coats of linseed oil.

358. WOOD SURFACES IN CONTACT WITH MASONRY. All surfaces of wood work which come in contact with masonry shall have a heavy coat of yellow ochre and linseed oil on the back.

359. PAINT FOR STEEL. The paint used on steel work shall be of best red lead and raw linseed oil in proportions of one gallon of oil to 25 lbs. of lead. The materials shall be brought to the premises in the original packages and mixed there.

All planed surfaces, drilled holes,etc. shall have a coat of white lead and tallow immediately after being machined or tooled.

360. PAINTING STRUCTURAL STEEL. All steel shall be cleaned of all rust, scales,etc. and given one coat of paint in the shop and ______coats after erection. Parts inaccessablw after erection shall be given ____coats before erection.

361. PAINTING SHEET METAL. All sheet metal work except copper shall be given a heavy coat of red lead and oil on

both sides before being put in place on the work.

Exposed Metal. Paint all exposed metal except copper ______ coats of ______________________________

______________.

362. REMOVING OLD PAINT. All loose scale and cracking paint must be thoroughly scraped from the surface and all rough places smoothed down with sand-paper.

Paint, badly alligatored or fissured shall be removed with a paint remover and the alkali must be afterwards neutralized in vinegar or mild ascetic acid and thoroughly washed.

INTERIOR PAINTING & VARNISHING.

363. PREPARATION. All interior wood work to be finished shall be cleaned from dirt, finger marks,etc. and thoroughly sand-papered.

364. INTERIOR PAINTED WOOD. Paint all interior wood in

____

____

except ________________________________

______ one priming coat of white lead and linseed oil and ____ coats of ______________________________

______________________________ in tints as directed. Not more than ____ tints will be required.

365. WOOD (VARNISHED). All wood trim of ____________________

____

______________________________ shall be filled with

__________ paste filler well rubbed into grain and cleaned off with burlap.

Follow with ______ coats of ______________________________ varnish, rubbed with curled hair between coats but last coat to be ____ ___________.

366. STAINING. All interior trim in ____________________________ ______________________________ shall be stained with ______ ____ of colors as directed and finish as specified for Varnish Wood.

367. ONE COAT STAIN. All interior trim in _____________________ ____ ____________________________________ is to be stained with one coat of color in oil of shades directed by Architect, thinned with mineral oil and liquid dryer. This shall be applied as a paint and well rubbed in with a rag.

368. WAXED FINISH. The interior trim of ______________________ ____ ____________________________________ shall be first stained as directed and then followed with one coat of oil and one coat of grain alcohol shellac, and then waxed in best manner. Wax must be rubbed thoroughly hard and dry with hard bristle brushed to a dull finish.

369. WALL PAINTING. The walls and ceilings of __________________ ____________________________________ shall be sized and painted _______ coats of ________________________________ __________________________ in _____ colors as directed.

370. OILING FLOORS. When all other work is done the wood floors

shall be given one coat of __________ linseed oil and one of boiled linseed oil. The first coat to have stain of desired tint. At least four days must elapse between each coat of oil.

371. HARD WOOD - FLOOR. Finish hard wood floors of ____ with, one coat _________ paste filler tinted as directed, coat of _______ liquid filler and _______ coats of ____. The floor shall be thoroughly cleaned of all stains, dirt, and dust before finishing.

372. WAXED FLOORS. Floors to be waxed shall have one coat of _______________________ and then waxed to a smooth finish with __________________________________ wax using weighted brushes.

373. GLAZING

GLAZING. All glass not otherwise detailed or specified shall be bedded in putty secured in place with glazer's points and neatly puttied to the full depth of the rabbet. All oil and putty marks shall be removed by the glazier. All glass in doors is to be set in stops.

374. PLATE GLASS. Glaze sash and doors so marked on elevations with ___________ Plate Glass of best quality and secure same with ____.

375. AMERICAN GLASS. Glaze sash of ________________________________ ____

______________________ with American II S. Glass.

376. SKY LIGHTS. Glaze all sky lights with ____________________

____________________________________.

377. PUTTY. All putty shall be first quality pure linseed oil putty.

378. ART GLASS. ____

____

____

____

____

HARDWARE.

379. HARDWARE. The Owner will furnish all finished hardware. All other hardware is to be included in this contract as is also the fitting and putting on of that furnished by the Owner.

380. HARDWARE. All hardware necessary to complete the work must be furnished and put in place whether specifically mentioned or not. All is to be as specified in the accompanying schedule.

PLUMBING

381. PERMITS. The Plumber shall obtain and pay for all necessary permits and comply with all corporation laws, relating to the subject of these specifications.

382. EXCAVATION. The plumber will do all excavating and refilling required to place his work; tamp all earth back in place.

PIPES.

383. EARTHEN-WARE PIPE. All earthenware pipe must be hard, smooth salt-glazed and cylindrical. Each length must be straight and free from fire cracks. All special fittings must be of same quality. All joints shall be laid in cement.

384. CAST IRON PIPE. All cast iron pipe and fittings shall be sound, cylindrical, smooth, free from, all defects, and of the grade known as "extra heavy", cast iron hub and spigot pipes. All fittings shall be of same quality as the pipe. All verticle iron pipe must be secured in place by iron clamps placed not more than five feet apart, and horizontal runs secured by iron hangers not more than ____ft.O.C.

385. WROUGHT IRON, Waste and SOIL PIPES. All wrought iron, waste soil and vent pipe shall be lap welded, screw joint pipe of standard weight and thickness. All fittings shall be heavy wrought iron, recessed beaded, screw jointed drainage fittings. Long turn bends must be used to change direction and Y branches for all branch connections. Remove all burr from ends of pipes.

386. GALVANIZED IRON PIPE. Galvanized iron pipe shall be extra galvanized wrought iron with heavy galvanized malleable iron screw jointed fittings.

387. LEAD PIPE. All lead pipe shall be drawn pipe of the best quality, firmly secured in place by hard metal tacks and screens placed not more than 2 ft. apart. All horizontal lead pipes shall be supported for their whole length by carrying strips put up by carpenter.

388. BRASS PIPING. All brass pipes shall be of seamless drawn brass tubing with brass fittings and screw unions put together in red lead and firmly fastened in position. All exposed brass pipe shall be nickel-plated. Brass water pipes shall be tinned inside.

389. JOINTS. All joints between cast iron pipes shall be caulked with lead and oakum, flush with top of spigot using 12 oz of metal lead to each 1" diameter of pipe.

All joints between lead pipes and lead brass pipes shall be by wiped joints.

All connections between lead and iron pipes shall be by brass ferrules.

WATER SUPPLY

390. CITY WATER SUPPLY. Tap city water main at ____________________ ____ and run __________ ____pipe to ____ ______________________ with branches to supply __________ ____ ____. Provide and set a corporation cock at ______________________

391. STOP AND WASTE. Provide and set on ______________________

______________________________________pipes at __________

________________brass stop and wastes.

392. WATER LIFT. Furnish and set where shown on drawings a

____

water lift with connections, past plugs, and drain complete. Arrange to waste __________. Connect by _______ pipes to

____

Provide _________pipe suction pipe from cistern. Cross connect to cut out pump and supply all fixtures by direct city pressure.

393. AIR TANK. Provide a ____gallon galvanized iron pressure tank and locate _________________________. Connect with discharge pipe from water lift by ______pipe. Provide ______pipe drain from bottom of tank to discharge __________ _________with cut off and pet cocks complete.

394. FORCE PUMP. Furnish and set where shown on drawings a

____

force pump complete with connections, frost plugs and discharge. Connection with cistern to be by ______pipe. Run discharge to ____________to be _____pipe.

395. ATTIC TANK. Line a ___x__x__x__ tank, furnished by carpenter, with _________________________. Supply same through ____inch pipe from force pump. Provide and place ___in, tell tale pipe and overflow carried to_______________.

396. BOILER SUPPLY. A ____in. plugged tee for boiler supply may be provided at ____

____

397. SILL COCKS. Provide and set ______ sill cocks at

____

each to be provided with a brass stop and waste near main supply.

Sill cocks shall be __________________________cocks with screw nozzles.

398. HOT WATER SYSTEM. Connect ________water supply to range boiler through _____pipe. Form circulating system by carrying ________pipe to highest fixture and back to boiler. Supply ____ _______from circulation.

399. RANGE BOILER. Provide and set on a suitable iron stand where shown on drawings a heavy galvanized iron ______ gallon boiler. Connect with water back in range and with ___ system by _____inch pipes. Place a _____inch brass waste cock at bottom.

400. WATER TEST. At completion the water supply system shall be given a hydrodrastic test of ______lbs. per square inch.

401. TURN ON WATER. After the completion of the work, the plumber shall turn on the water and have every thing in perfect working order.

SEWERAGE

403. Furnish and lay in best manner ___in. vitrified tile drain pipe, all uniformly graded, beds hollowed for hubs and jointed in clear cement; joints scraped out as laid.

Connect with ____

____

403. SOIL PIPES. These shall be _____in. cast iron pipe having not less than a 1/4" per foot uniform grade in horizontal runs and shall extend one foot above the roof, increasing one size before so doing. The soil pipe shall have a 4" sanitary T branch for each water closet and slop sink; other connections shall be by separate branches of full size of waste entering it.

404. HOUSE DRAIN TRAP & FRESH AIR INLET. Provide and set a vented ____
______ trap at ________________________________.
Connect vent on house side of trap and carry up above grade at ______________________and guard exposed and with a vent cap.

405. CLEAN OUTS. Provide brass screw cleanouts ______________
____for drain and soil pipe.

406. REFRIGERATOR DRAIN. Provide Galvanized iron drip pipe for refrigerator and carry it to _____________________________.

407. VENT STACKS. Construct at ________________________________
_________________________________a ___inch ___iron vent pipe, connected by lead branches to crown of every trap.
Connect to soil stack above highest fixture.
Run above roof ___feet enlarging to _____inches before so doing.

408. LEAD FLASHING. Joints between soil or vent pipes and roof shall be made water tight by 3# sheet lead flashing.

409. CELLAR FLOOR DRAIN. Place in cellar floor where shown on plan a __________________________cellar floor drain complete with trap.

410. AREA DRAINS. Provide and set in areas where shown on drawings ______________________cast iron area drains with ____traps.

411. TRAPS. Each fixture shall have a separate ______________ ________________________________ trap located as near it as practicable and so arranged that the waste from a fixture will flow through only one trap before entering main drain. All traps shall be of same weight and thickness their corresponding branches shall be well supported and set true with respect to their water levels.

412. GREASE TRAPS. Provide and place at ___________ a ______ grease trap.

413. WATER TEST. After sewerage system is roughed in all outlets shall be plugged and each soil and vent stack filled with water to top and left for ____ hours. All leaks found shall be made good.

414. SMOKE TEST. After all fixtures are in place and trap filled with water and after plugging up house sewer smoke test shall be applied and leaks found made good.

415. PEPPERMINT TEST. After all fixtures are set and traps filled with water and after plugging up house sewer pour five ounces of oil of peppermint down each stack followed by two or three gallons of hot water and cover top. If any oXdor is present in house leaks must be discovered and made good.

416. BATH TUB. Provide and set complete in ________________

____

______________________________ bath tub and

connected with hot and cold water and supplied through

____________________cocks and waste through

____

water pipes to be ______________________________

____

F I X T U R E S

417. FOOT BATH. Provide and set complete in ________________

a ____

foot bath, supplied with hot and cold ______________

water through __________________cock and waste throug

____________. All pipes and fittings to be ________

____________.

418. SHOWER BATH. ______________________________________

____

____

____

____

_________.

419. LAVATORY. Provide and set complete in ________________

____

_________________________________ lavatoris

with ______________________slabs and ______________

back supported with __________________water

through ________cocks, waste through _______,wastes

and supply pipes shall be ________________________

420. WATER CLOSETS. Provide and set complete in ______________
____
____
_________water closet with ___________________________
________________________ flushing tank and ________
supply and _____flush pipes. Supply to have shut off.

421. URINALS. Provide and set ___________________________
__________________ urinals provided with _____
gallon flushing tank,_________ opperating. Fittings
shall be ____
_________ .

422. KITCHEN SINK. Provide and set in kitchen _____________
____
__________________________________sink supported
on ____
_____ supplied with ______water through ___________
______________________________________ cocks.
Waste through ___________________________________
____________ and provide strainer,etc. complete.

423. PANTRY SINK. Place where shown in pantry a _____________
_________________________________ sink complete
with over-flow and strainer and stop and chain for waste
opening. Supply with hot and cold ______water through
_______cocks and waste through __________.

424. CELLAR SINK. Provide and place in cellar where shown
on drawings a __________________________________
_____________ sink. Supply with ______water through
__________cocks and waste through __________

support sink on ____________________________.

425. SLOP SINK. Provide and set in ______________________ a

____

slop sink complete with flushing tank, with ______supply and _____flush pipe and chain pull. Also provide with hot and cold ________water through ___________________ cocks.

426. LAUNDRY TUBS. Provide and place in Laundry where indicated on plan ____

laundry tubs supplied with hot and cold _____water through _______cocks and waste through ____________.

427. SAFES. Under ____

______________ place recessed _________marble safes.

428. MARBLE. Plumber's marble shall be ______________________

_____________________________. This will be used for ____

____

GAS FITTING

429. GAS PIPING (FOR SMALL WORK) Pipe the building in the best manner with wrought iron gas pipe of sizes required by the gas company, without-lets as marked on the plans. All pipes shall be screw capped, tested and prooved perfectly tight before plastering is done and the caps shall be left on. All pipes shall be laid with a fall toward the meter and well secured with hooks and bands. The gas ~~fittingxx~~ fitter is to call upon the Carpenter for all such cutting of timbers as he needs, but no beams

shall be cut, notched or bored more than 2 feet from a bearing. Drop lights where necessary shall be supplied by special branches. All pipe ends shall be cut to an exact length from putting on fixtures. All side lights shall be supplied from branches brought upon from below.

The Owner will furnish the fixtures which shall be put in place by the gas fitter when the interior finishing is completed.

430. EXTENT. The contractor is to put in place complete the system of gas piping for supplying all the lights indicated on the drawings.

The gas fixtures are not ~~indicated~~ included in this contract but will be furnished by the Owner but shall be installed by the Contractor.

431. WORKMANSHIP. Put all pipe together using necessary fittings with red lead or litharge and in no case shall pipes be bent or ~~spinning~~ sprung. Secure pipes with suitable hooks, bands,etc. No gas fitter's cement will be allowed.

432. PIPE. All gas pipe shall be "Standard "guage, black, wrought iron and all fittings shall be heavy malleable galvanized iron fittings.

433. MAIN CONNECTIONS. The Contractor must pay all fees and charges for bringing a _____in. gas supply pipe into the building where indicated. If required by gas company regulations the contractor must furnish and place at __________stop cock on gas pipe with a cast iron

extension stop cock box.

434. RUNNING PIPES,DRIP OUTLETS. All pipes shall have a regular fall toward the risers; and at the foot of each riser put a "T" fitting setting long axes verticle which fasten a short piece of pipe to collect drip. Fasten a ______ inch stop cock to end of pipe to draw off drip.

435. BRANCH OUTLETS. No branch outlets from mains shall be less than 1/2" pipe and out-lets for brackets shall be 3/8" pipe.

436. NIPPLES. Nipples for fixtures must be at right angles to the walls and ceilings and must project from finished plaster line, in case of ceilings not less than 3/4" nor more than 1 1/4" and in case of walls not less than 1/2" nor more than 3/4" and be properly fitted and capped.

437. COVERING PIPES. The pipes along masonry walls except those not intended to be plastered, shall be let into the brick work so as to be entirely covered with plaster, and in wood partitions to be run between studs.

438. CHANDILEER DROPS. Drops for chandiliers shall be from center of a "T" branch, and the extra opening in the "T" fitted with a capped, 12" length of pipe to be securely fastened in place.

439. CONDUIT BOXES. The gas outlets of ______________________

______________________ shall be so arranged as to allow the placing of electric conduit boxes for combination fixtures.

440. TESTING. The entire gas pipe system shall be satisfactorly tested as soon as placed, with _____lbs. air pressure similar test to be made on completion of the plastering.

ELECTRIC WIRING

441. GENERAL This Contractor will furnish all the labor necessary to complete all the electric light wiring ________ required to furnish electrity to all lights ________shown on drawings and to furnish all wires, tubes, cleats, switches, cut-outs, fuse wire ______________,etc.

442. UNDERWRITERS RULES. All work done and materials furnished under this contract shall conform to the rules of the National Board of Fire Underwriter, edition of _____ and also in accordance with the local fire laws.

443. WHEN TO BE DONE. The electric wiring shall be put in as the building progresses, at such times as not to interfere with the work of other Contractors.

444. SERVICE. Service wires shall be run from cut-out box to outside of building at _______and shall be provided with _______switch at cut out box. Connect meter on service wires and provide meter loop and board.

445. CONDUIT. Wiring of ______________________________________

____

_______________ is to be run in _______________________

_________________________________ conduit which is to be continuous runs from outlet to outlet.

446. WIRE. All wire shall be copper, if not less than 96 % of that of pure copper, and must be covered with ____ ________________________ insulations. The wire shall be heavy enough to carry ____volt circuit with not less than a 2% drop in voltage from point of entracnes into building and any light . No wire of less than #14 B and S guage shall be used.

447. JOINTS. All joints are to be properly cleaned, soldered and covered with compound and tape.

448. OUTLETS. All outlets shall be located as indicated on plans or schedule.

449. SUPPORTS AT OUTLETS. All wires shall be provided with good secure supports at the outlets.

450. SWITCHES. All switches shall be _____________________________ ________________________________ and located as indicated on plans or accompanying schedule.

451. CIRCUITS. There shall not be more than ___lamps on any one circuit.

452. TUBING CLEATS. Vitrified day tubes shall be used to protect wires from all wood work, masonry, and pipes or other metal work. These shall be securely fastened in place and protected where they are liable to mechanical injury. All cleats shall be porcelain.

453. CONCEALED WORK. All wiring in __________________________________ ___________________________ shall be concealed work.

454. COVERING WORK. No wires shall be covered or joints taped until after they have been inspected by the Superintendent.

455. CUT-OUT CABINET. Use ________ circuit ____________________

__________________________________ tablet board and line cabinet, provided by Carpenter, with asbestoes.

456. FIXTURES. Fixtures, sockets, and lamps will be furnished and put in place by the Owner.

457. BELL WIRING. Provide and install complete the following:-

____

____

____

All wiring is to be weather proof and joints and splices covered with rubber tape.

Provide and place in position ______________________________

____________________________________ batteries.

Push buttons, at ________________________________

will be furnished by the Owner.